



## ENKOFLEX Horizontal Formwork

Construcción



#### IMPORTANT:

Any safety provisions as directed by the appropriate governing agencies must be observed when using our products.

The pictures in this brochure are snapshots of situations at different stages of assembly, and therefore are not complete images. For the purpose of safety, they should not be deemed as definitive.

All of the indications regarding safety and operations contained in this brochure, and the data on stress and loads should be respected. ULMA Construcción's Technical Department must be consulted anytime that field changes alter our equipment installation drawings.

Our equipment is designed to work with accessories and elements made by our company only. Combining such equipment with other systems is not only dangerous but also voids any or all our warranties.

The company reserves the right to introduce any modifications deemed necessary for the technical development of the product.

---

All rights reserved

Neither all nor part of this document may be reproduced or transmitted in any way by any electronic or mechanical procedure, including photocopy, magnetic recording or any other form of information storage or retrieval system without the written permission of **ULMA Construcción**.

# Index

## ENKOFLEX Horizontal Formwork

4	Objective
6	Product description
12	Assembly and disassembly
18	Technical solutions
21	Safety Elements
22	Applications
24	Receiving, storing and cleaning
26	Components and accessories
36	ULMA Construcción addresses
40	Our Products



Safety Note



Control Note



Warning Note

## ► Objective

The objective of this document is to provide the reader with information on our ENKOFLEX horizontal formwork systems.

In the first part of the manual, we provide a product description, especially focused on the shuttering face and on the shoring systems used with this product.

Additionally, basic product assembly and disassembly are explained in this manual.

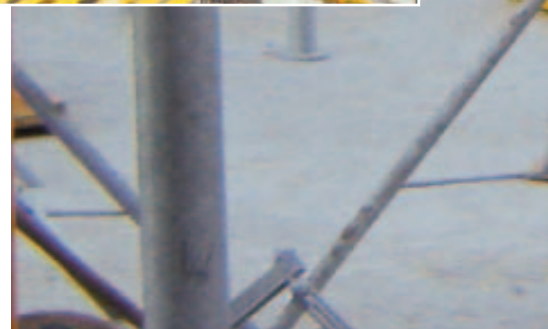
The Technical Solutions section expounds on system options offered as solutions for the different cases that may occur on the construction site.

Then, the manual explains how to assure the safe use of the system, and it expounds on the safety components used in the system.

The section on Receiving, Storing and Cleaning the system describes how to properly stack components for transporting or simply moving the parts used in the ENKOFLEX horizontal formwork.

Following that, there is a complete list of Components and Accessories, providing the names and drawings with dimensions.

For an in depth on the proper functionality, use and handling of the ENKOFLEX Horizontal Formwork system, it is recommended to read the ENKOFLEX User's Manual. Also, remember that you can contact the technical support personal in the Engineering Department of the ULMA branch office closest to the construction site. As always, we are here to serve you.







## ▶ Product description

**ENKOFLEX** is a horizontal formwork system designed for any type of slab formwork, whether solid or lightened (except those with domes) as well as for drop beams or other elements.

As it is a formwork made up of independent beams, the system is highly versatile, enabling it to suitably adapt to irregular slabs.

It is also the ideal system for infillings and areas that are not covered with other formwork systems, such as the VR Tables or CC-4.

The main system components are the following:



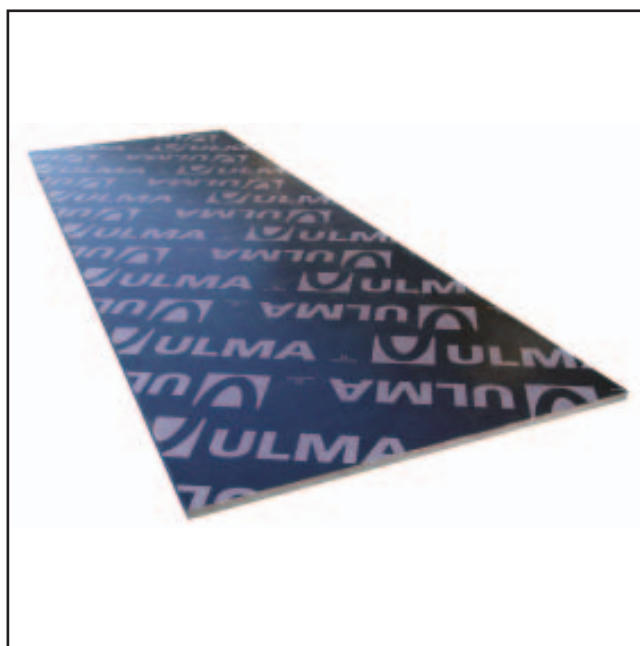
▶ VM 20 Beams



▶ VR Simple Head



▶ VR Double Head



▶ Board

## VM 20 Beams

This part is used to build the ENKOFLEX system's grid. VM 20 Beams can be used as main or secondary beams.

The timber Beams are in the shape of a double "T": 200 mm long by 80 mm wide. The two ends are protected by plastic pieces.

VM Beams are available in different lengths, so that the most appropriate length can be chosen for each case.

VM 20 Beam properties are shown below:

- Maximum admissible bending moment: 5.0 kNm
- Admissible shear force: 11 kN
- Stiffness (EI): 450 kNm<sup>2</sup>

## VR Simple Head

This is used to shore the VM 20 Main Beams in the ENKOFLEX system. The VR Simple Head can be mounted on all of the ULMA Construcción Props.

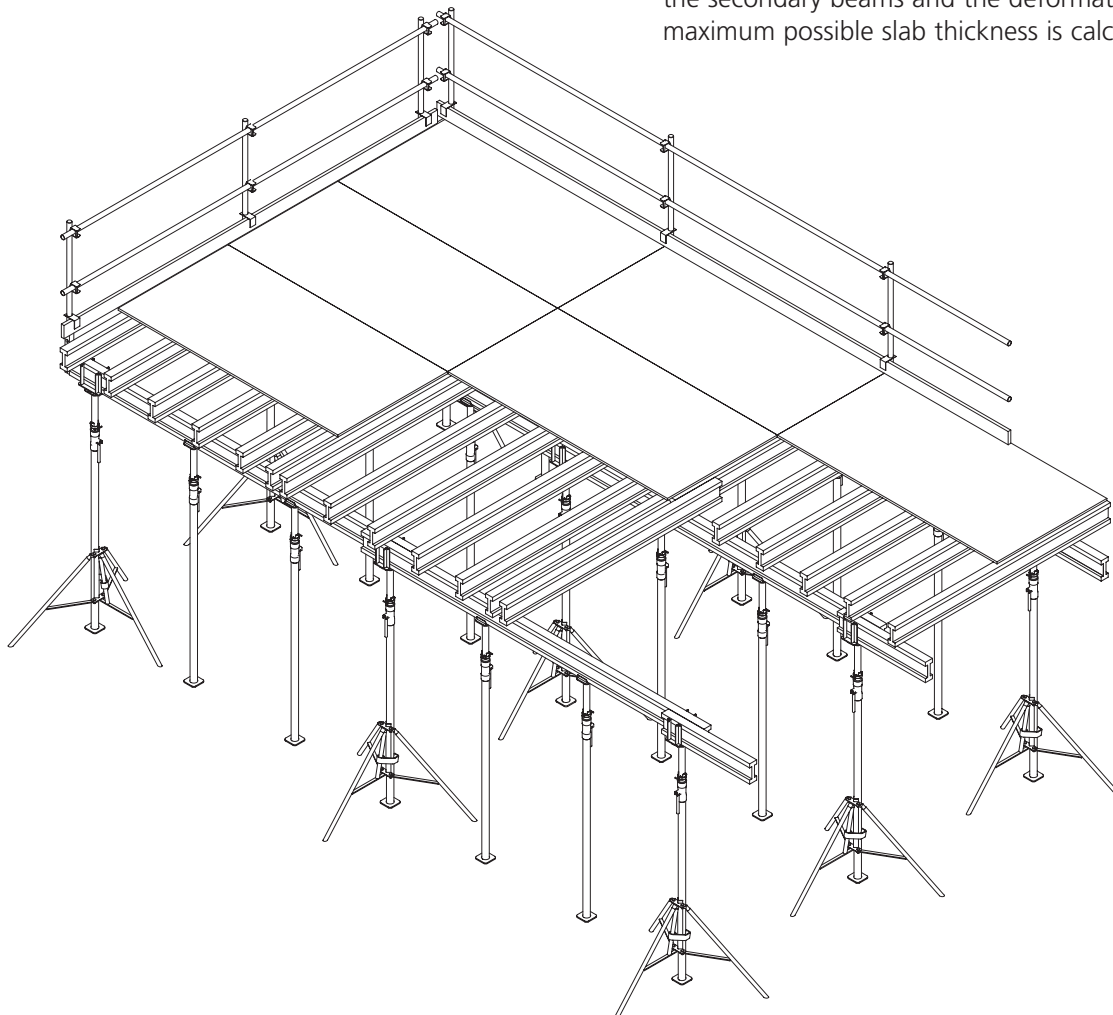
The Head's open profile facilitates its assembly and disassembly. It can be fixed to the EP Props using the pin and a Cotter Pin.

## VR Double Head

The Head socket incorporates Ø 18mm pre-tapped holes for inserting Pins. As with the VR Simple Head, it can be fixed to the EP Props using pin Ø16x100 and Cotter Pin 3.

## Board

Depending on the Board selected, the distance between the secondary beams and the deformation criteria, the maximum possible slab thickness is calculated.





## Beto 18

1250x2500
ELU
L/500
L/300
L/250

Distance between supports (m)			
0.334	0.4	0.500	0.667
1.38	0.99	0.66	0.41
0.46	0.30	0.16	0.07
0.79	0.51	0.29	0.14
0.96	0.62	0.36	0.18
<i>7 Spans</i>	<i>6 Spans</i>	<i>5 Spans</i>	<i>4 Spans</i>

## Beto 21

1250x2500
ELU
L/500
L/300
L/250

Distance between supports (m)			
0.357	0.416	0.500	0.625
1.86	1.50	1.01	0.61
0.80	0.53	0.31	0.15
1.35	0.90	0.53	0.27
1.63	1.08	0.65	0.33
<i>7 Spans</i>	<i>6 Spans</i>	<i>5 Spans</i>	<i>4 Spans</i>

## 3-Ply Sheet 21

2000x503
ELU
L/500
L/300
L/250

Distance between supports (m)			
0.334	0.4	0.500	0.667
1.92	1.58	1.24	0.90
1.42	0.85	0.43	0.16
2.39	1.43	0.74	0.29
2.86	1.72	0.89	0.35
<i>6 Spans</i>	<i>5 Spans</i>	<i>4 Spans</i>	<i>3 Spans</i>

## 3-Ply Sheet 27

2000x503
ELU
L/500
L/300
L/250

Distance between supports (m)			
0.334	0.4	0.500	0.667
2.52	2.09	1.65	1.22
2.76	1.68	0.89	0.35
4.60	2.82	1.50	0.61
5.55	3.40	1.80	0.74
<i>6 Spans</i>	<i>5 Spans</i>	<i>4 Spans</i>	<i>3 Spans</i>

- Maximum slab thickness (m) according to ULS or SLS criteria.



## Working Load Tables

Once the slab thickness and the Board to be used are known (according to resistance, the span of the VM 20 Secondary Beams and the required concrete finish), this is checked on the use table, calculating the maximum distance between VM 20 Main Beams. Once the maximum distance between VM 20 Main Beams is known, the maximum distance between props is selected.

Depending on the height at the construction site, the appropriate prop must be selected to support the formwork loads.

Slab thickness (m)	Load (kN/m <sup>2</sup> ) in accordance with DIN 4421	Distance between Main Beams (m)				Distance between Props (m)								
		Distance between Secondary Beams (m)				Distance between Main Beams (m)								
		0.334	0.4	0.500	0.667	1.00	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50
0.10	4.00	4.73	4.46	4.14	3.76	3.16	2.58	2.39	2.24	2.11	2.00	1.91	1.83	1.57
0.12	4.50	4.51	4.25	3.95	3.58	2.98	2.43	2.25	2.11	1.99	1.89	1.78	1.63	1.40
0.14	5.00	4.33	4.08	3.78	3.44	2.83	2.31	2.14	2.00	1.89	1.76	1.60	1.47	1.26
0.16	5.50	4.17	3.93	3.65	3.30	2.70	2.20	2.04	1.91	1.78	1.60	1.45	1.33	1.14
0.18	6.00	4.04	3.80	3.53	3.16	2.58	2.11	1.95	1.83	1.63	1.47	1.33	1.22	1.05
0.20	6.50	3.91	3.69	3.42	3.04	2.48	2.03	1.88	1.69	1.50	1.35	1.23	1.13	0.97
0.21	6.75	3.86	3.63	3.37	2.98	2.43	1.99	1.84	1.63	1.45	1.30	1.19	1.09	0.93
0.24	7.50	3.71	3.49	3.24	2.83	2.31	1.89	1.68	1.47	1.30	1.17	1.07	0.98	0.84
0.26	8.00	3.62	3.41	3.16	2.74	2.24	1.83	1.57	1.38	1.22	1.10	1.00	0.92	0.79
0.28	8.50	3.54	3.34	3.07	2.66	2.17	1.73	1.48	1.29	1.15	1.04	0.94	0.86	0.74
0.30	9.00	3.47	3.27	2.98	2.58	2.11	1.63	1.40	1.22	1.09	0.98	0.89	0.81	0.70
0.35	10.38	3.31	3.10	2.78	2.40	1.96	1.41	1.21	1.06	0.94	0.85	0.77	0.71	0.61
0.40	11.75	3.18	2.92	2.61	2.26	1.85	1.25	1.07	0.94	0.83	0.75	0.68	0.62	0.53
0.45	13.13	3.02	2.76	2.47	2.14	1.68	1.12	0.96	0.84	0.74	0.67	0.61	0.56	0.48
0.50	14.50	2.87	2.63	2.35	2.03	1.52	1.01	0.87	0.76	0.67	0.61	0.55	0.51	0.43

► ENKOFLEX system use table for Beto Board.



Due to the load bearing limitations of the VM 20 Beam, the Prop must never be used to support loads greater than 20 kN.

SP Prop Working Loads (kN) Table							
Height (m)	NORMAL PROP		STRONG PROP			SP-40	SP-50
	1.75-3.10	2.10-3.50	2.10-3.65	2.35-4.00	3.65-5.25	2.50-4.00	3.90-5.00
1.75	23.00						
1.80	23.00						
1.90	23.00						
2.00	23.00						
2.10	23.00	23.00	26.00				
2.20	21.71	22.57	26.00				
2.30	20.43	22.14	26.00				
2.35	19.79	21.93	26.00	22.50			
2.40	19.14	21.71	26.00	22.50			
2.50	17.64	20.50	26.00	22.50		28.00	
2.60	15.93	18.50	26.00	22.50		28.00	
2.70	14.21	16.50	26.00	22.50		28.00	
2.80	12.50	14.50	26.00	22.38		28.00	
2.90	11.17	13.33	24.83	22.25		28.00	
3.00	9.83	12.17	23.67	22.13		28.00	
3.10	8.50	11.00	22.50	22.00		28.00	
3.20		10.36	20.83	21.32		28.00	
3.30		9.72	19.31	20.64		27.00	
3.40		9.08	17.94	19.95		26.00	
3.50		8.44	16.56	19.27		25.00	
3.60			15.19	18.59		24.00	
3.65			14.50	18.25	15.00	23.25	
3.70				17.57	14.66	22.50	
3.80				16.21	13.97	21.00	
3.90				14.86	13.28	19.50	22.00
4.00				13.50	12.59	18.00	22.00
4.10					12.06		22.00
4.20					11.67		22.00
4.30					11.29		22.00
4.40					10.90		22.00
4.50					8.44		22.00
4.60					8.16		22.00
4.70					7.88		21.63
4.80					7.60		21.25
4.90					7.10		19.88
5.00					6.60		18.50
5.10					6.10		
5.20					5.60		
5.25					5.40		



Due to the load bearing limitations of the VM 20 Beam, the Prop must never be used to support loads greater than 20 kN.



This data applies to new Props that are plumbed and supporting a centered vertical load.

The following table shows the working loads obtained by calculation according to EN 1065, when EP Props are used with ENKOFLEX formwork.

Working loads (kN) for EP Props with ENKOFLEX								
Height	C25	C+D30	C+D35	C+D40	C+D45	C+D50	C+E30	C+E40
Inner tube	Up							
h (mm)	1.48-2.50 m	1.72-3.00 m	1.98-3.50 m	2.22-4.00 m	2.48-4.50 m	2.73-5.00 m	1.71-3.00 m	2.22-4.00 m
5000						23.00		
4900						24.40		
4800						25.70		
4700						27.10		
4600						28.60		
4500					27.90	30.10		
4400					29.70	31.80		
4300					31.50	33.60		
4200					33.40	35.50		
4100					35.40	37.60		
4000				22.30	37.60	39.90		34.40
3900				23.90	40.00	42.40		36.90
3800				25.40	42.50	45.20		39.50
3700				27.10	45.30	45.60		42.30
3600				28.80	45.60	45.60		45.20
3500			28.20	30.70	45.60	45.60		45.60
3400			30.50	32.70	45.60	45.60		45.60
3300			32.70	34.90	45.60	45.60		45.60
3200			35.10	37.30	45.60	45.60		45.60
3100			37.70	39.40	45.60	45.60		45.60
3000		21.90	40.40	40.90	45.60	45.60	36.90	45.60
2900		23.60	42.90	42.70	45.60	45.60	40.20	45.60
2800		25.50	44.20	45.00	45.60	45.60	43.60	45.60
2700		27.40	45.60	45.60	45.60		45.60	45.60
2600		29.50	45.60	45.60	45.60		45.60	45.60
2500	29.50	31.60	45.60	45.60	45.60		45.60	45.60
2400	32.30	32.50	45.60	45.60			45.60	45.60
2300	34.80	33.60	45.60	45.60			45.60	45.60
2200	35.90	35.10	45.60				45.60	
2100	36.80	37.20	45.60				45.60	
2000	37.70	40.10	45.60				45.60	
1900	39.00	44.30					45.60	
1800	41.00	45.60					45.60	
1700	43.90							
1600	45.60							
1500	45.60							



The use of EP Props with Rapid and Recub with the Inner Tube below is not allowed



## ▶ Assembly instructions

### Basic assembly

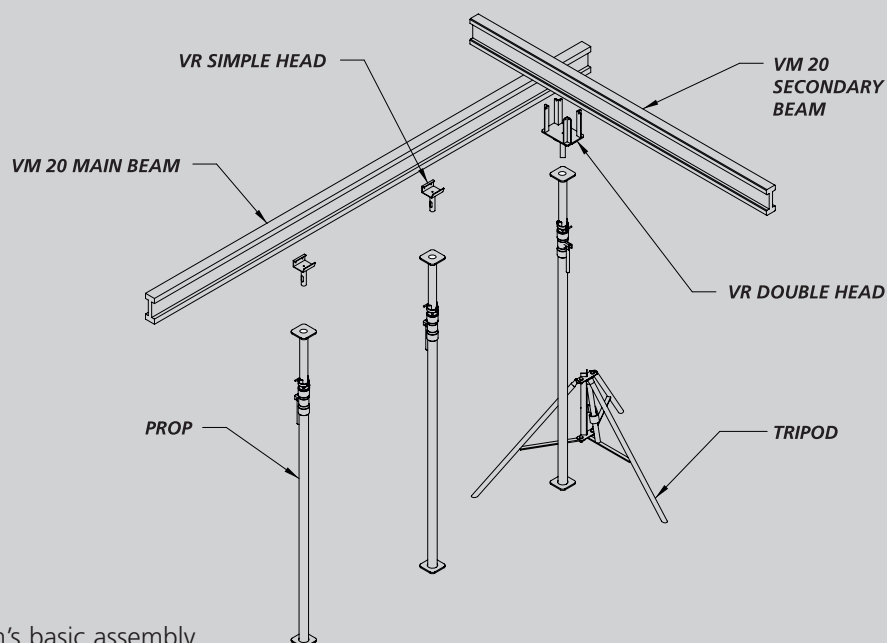
For more information, see the  
ENKOFLEX Horizontal Formwork  
User's Manual



The ENKOFLEX system's basic assembly comprises VM 20 Beams forming two layers, supported by VR Two-Way U-Heads and VR Simple Heads. The board is supported by the VM 20 Secondary Beams.

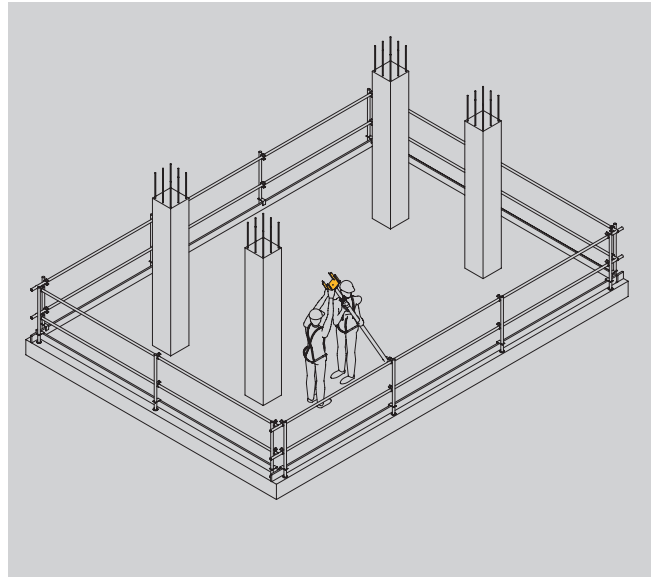
The Two-Way U-Heads are assembled on both ends of each main beam, as well as where the VM 20 Main Beams overlap.

The Props with VR Two-Way U-Heads are assembled with Tripods to give the system stability.

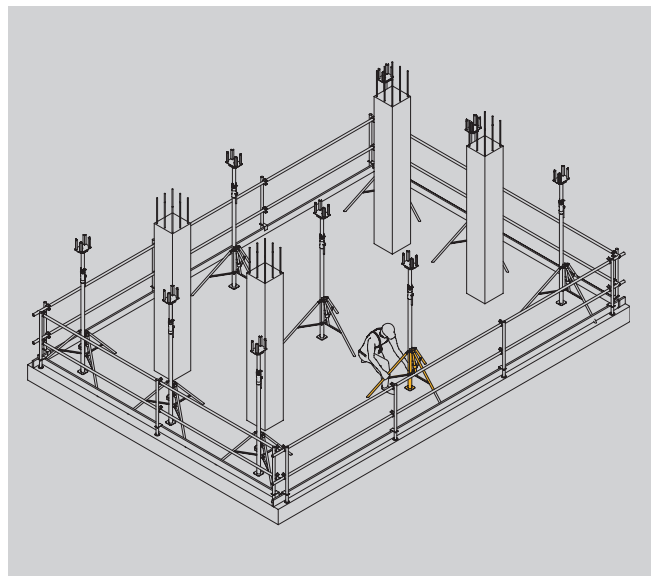


▶ ENKOFLEX system's basic assembly

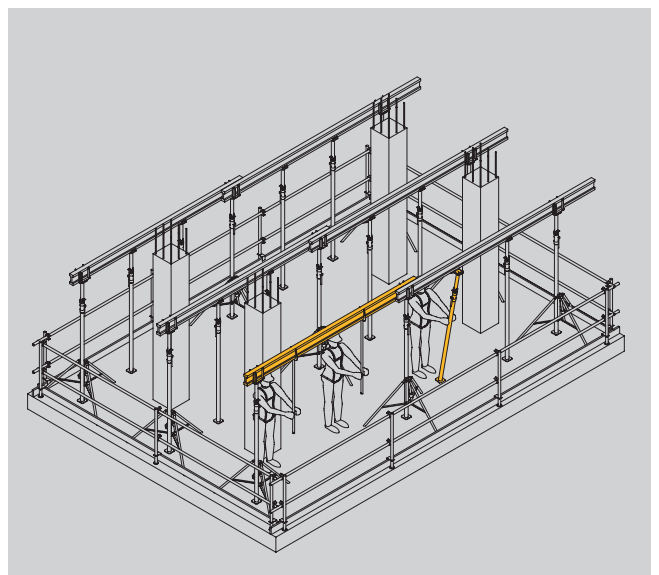
- 1 Insert the Head in the upper side of the Prop.



- 2 Lay out the main beams in accordance with the drawing. Place the props, stabilizing them with tripods and following the layout lines.



- 3 Place the main beams, shoring each one with two Props and Two-Way U-Heads on their ends. Use Tripods to stabilize them. Place the intermediate props with the Simple Head.

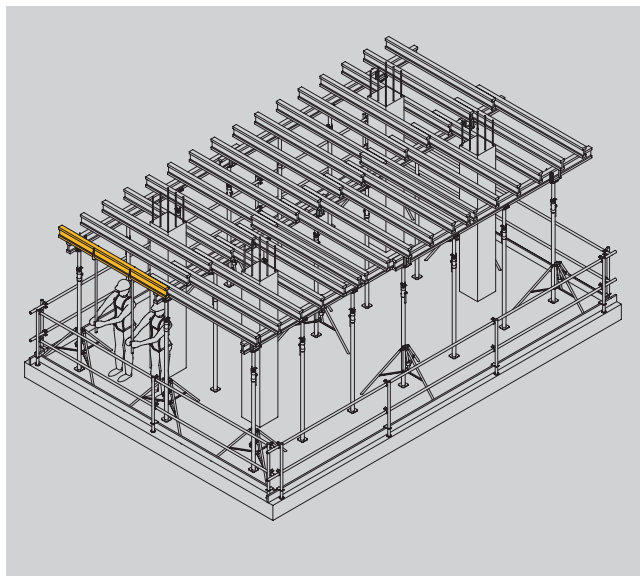


The main beams shall be mounted with the help of specific components required, or in their absence with auxiliary equipment.

- 4 Place the secondary beams leaving the distance indicated in the assembly drawings.



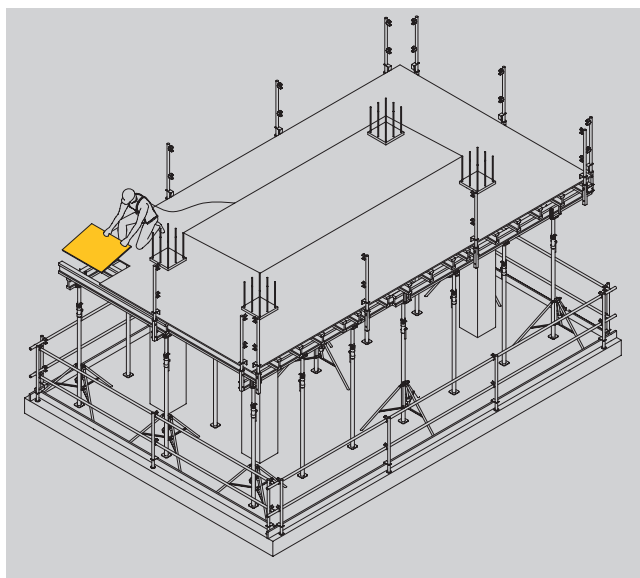
When placing the secondary beams, use the same equipment used to place the main beams.



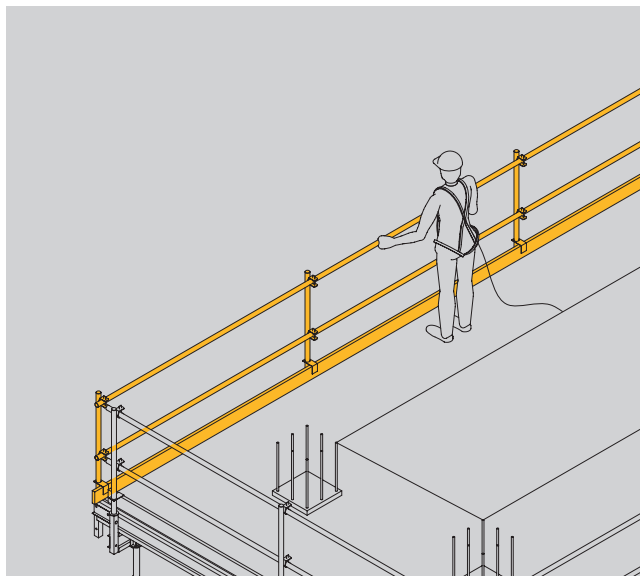
- 5 Install the Boards and secure it.



The operator must be tied off at all times using an anti-fall harness with securing shackle tied to the lifeline that is installed between the columns or using auxiliary safety measures.



- 6 Close off the perimeter using Handrails and Toe boards.



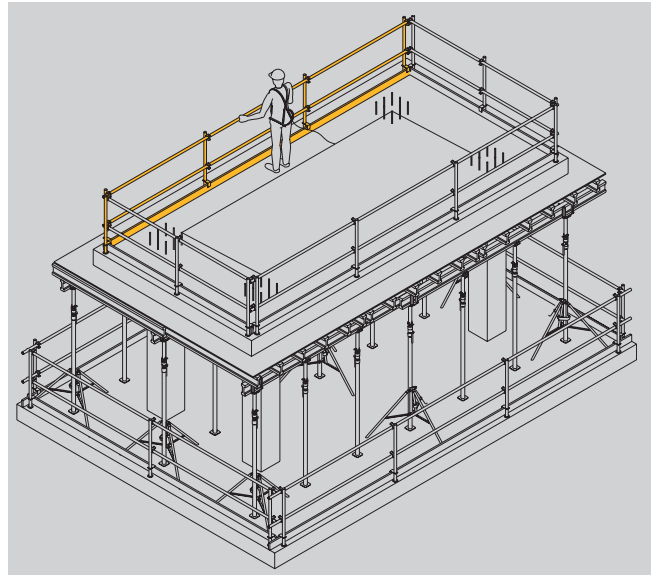


## ▶ Disassembly instructions

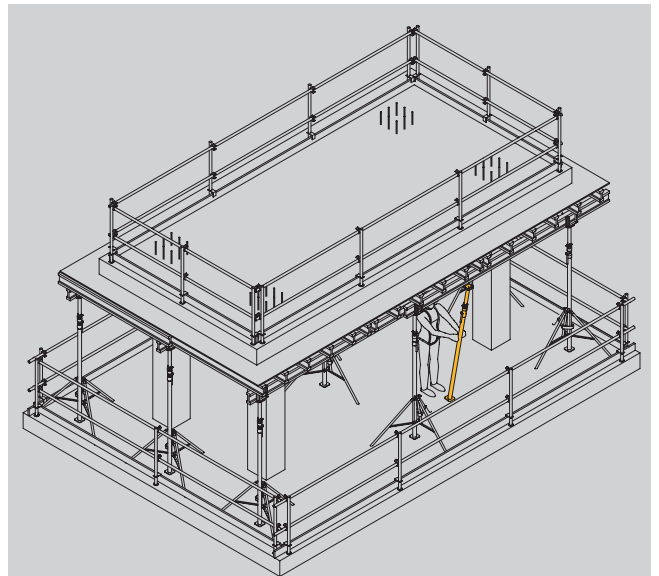
### Basic Disassembly

Once the concrete has cured to the necessary hardness, proceed to strip the formwork.

- 1 Remove the perimeter protections and place them in the slab previously poured.



- 2 Remove all Intermediate Props with Simple Heads.



Study the stripping process in order to avoid overloading the Props.



When removing the Props, it is not necessary to completely extract the Simple Head from the Prop. It is sufficient to loosen it and rotate it to the side.



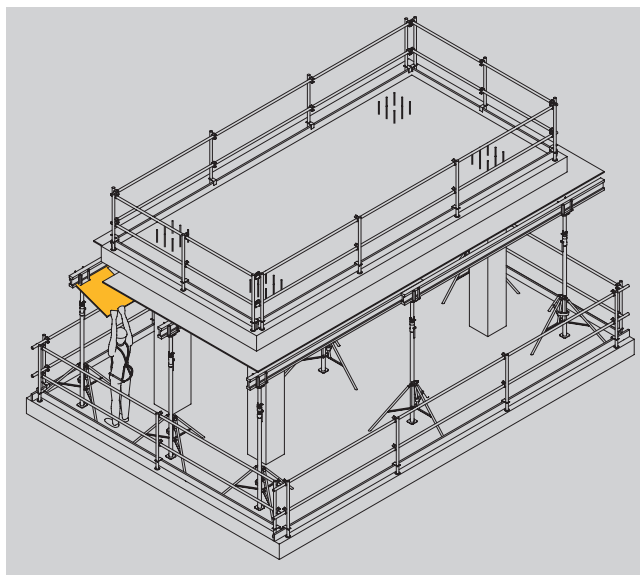
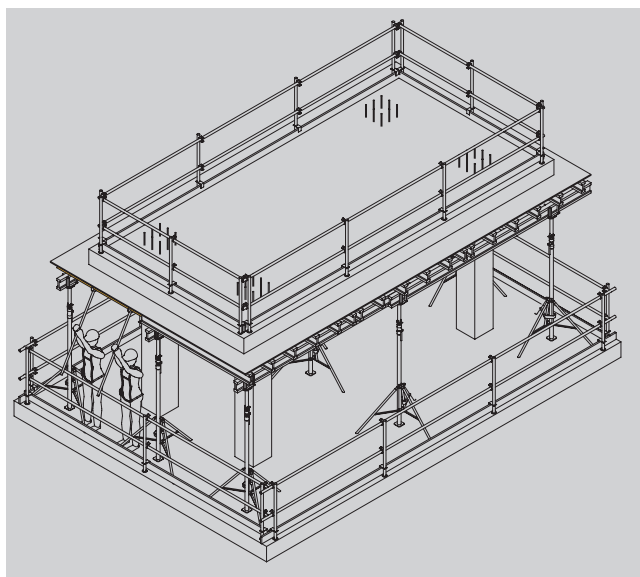
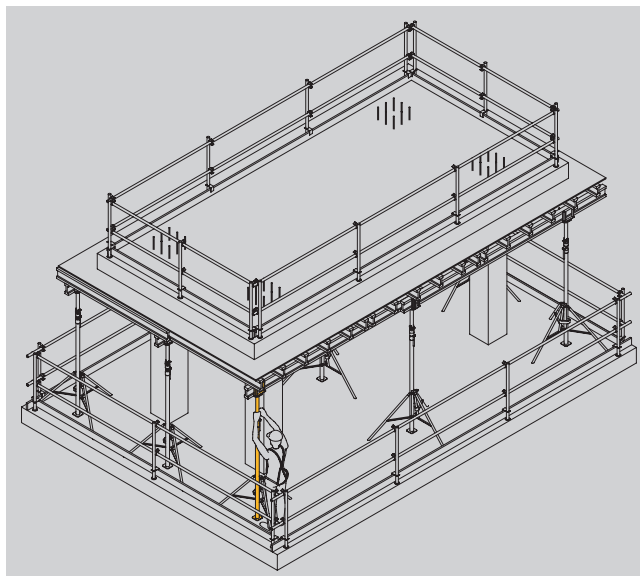
- 3 Loosen the remaining Props approximately 5 cm in order to drop the main beams.



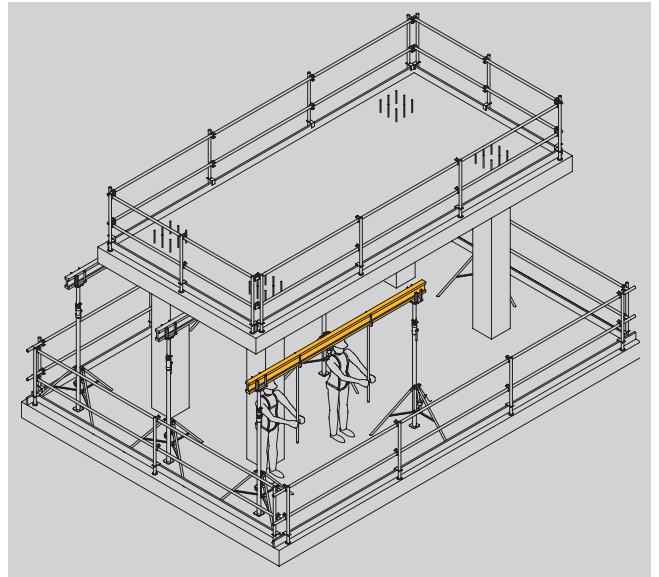
Take the necessary precautions to assure that none of the components fall.

- 4 Turn the secondary beams on the main beams to remove them, leaving those that go on the panel joints.

- 5 Remove the panels and the secondary beams that were shoring them.



- 6 Strip the rest of the formwork: Main Beams, Props, Double Heads and Tripods.



## Removing Falsework

The formwork should always be stripped from the center of the span working out. Likewise, in the case of cantilevers, the formwork should be stripped starting from the end of the cantilever and working in.

Depending on the execution deadlines, layout of the formwork, thickness of the slab and total height, when the concrete can support the stresses to which it is subjected the shoring will be removed, starting with the central Props and working out towards the columns.





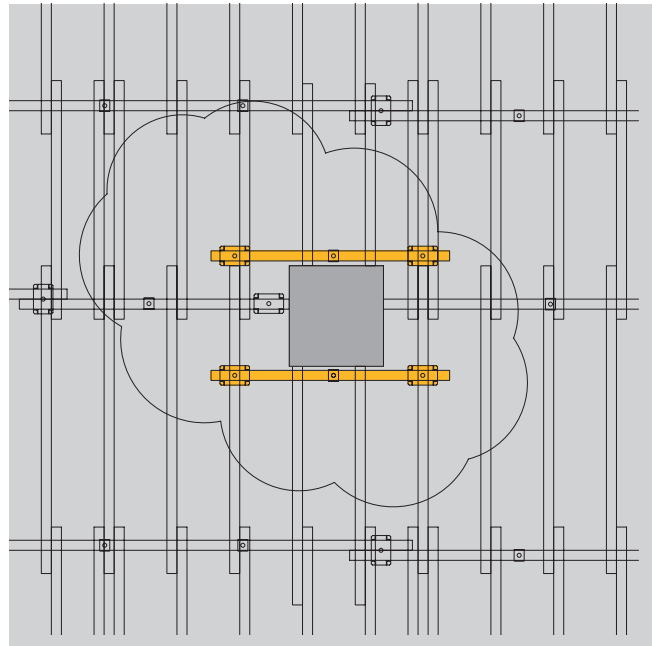
## ► Technical solutions

### Interference with Columns

Once the direction of the VM 20 Main Beams has been selected, the entire slab is covered with the ENKOFLEX system. It is highly probable that some columns interfere with the formwork standard layout in this situation. Some of the most common cases are shown below:

#### MAIN BEAMS INTERFERE WITH A COLUMN

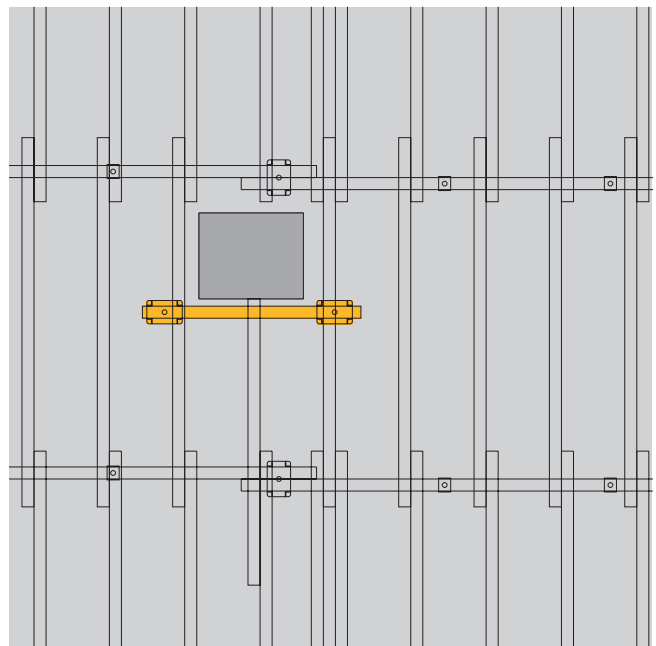
In this case, as shown in the image below, auxiliary beams are placed on both sides of the column, parallel to the main beams, enabling the secondary beam to rest on them. These auxiliary beams are supported using VR Two-Way U-Heads and Tripods.



► Solution for column interference with main beams.

#### COLUMN BETWEEN MAIN BEAMS

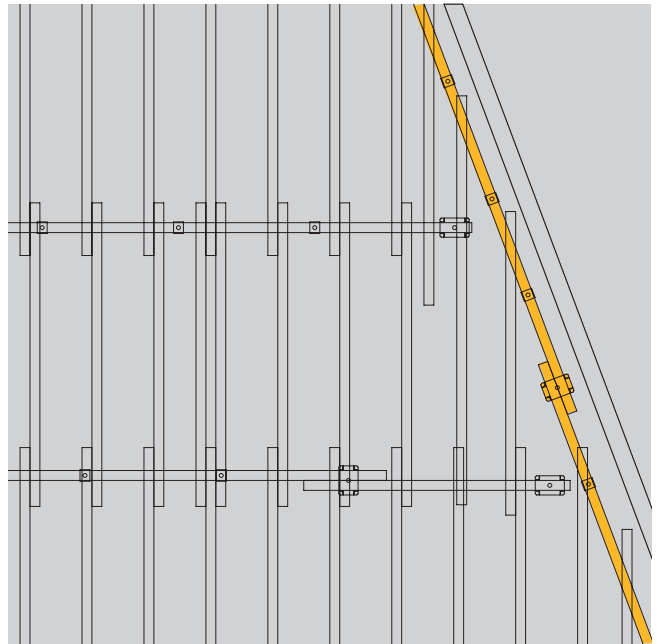
When interference with the secondary beams is inevitable, the procedure shall be the same as in the previous case.



► Solution for column interference with secondary beams.

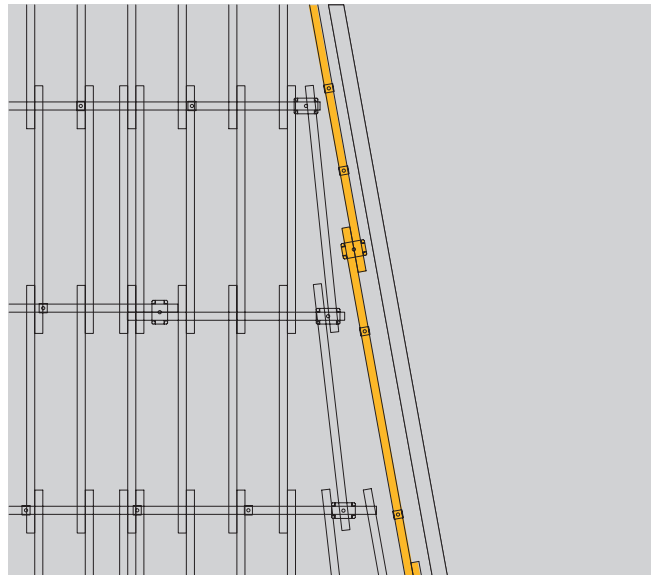
## Infilling

To make the ENKOFLEX infillings on inclined walls, the VM 20 Beam must be placed parallel to the wall, enabling the VM 20 secondary beams or the board infilling to be shored against the wall. In one case VM 20 Beam will be placed at the height of the main beams, while in the other, it will be placed at the height of the secondary beams.



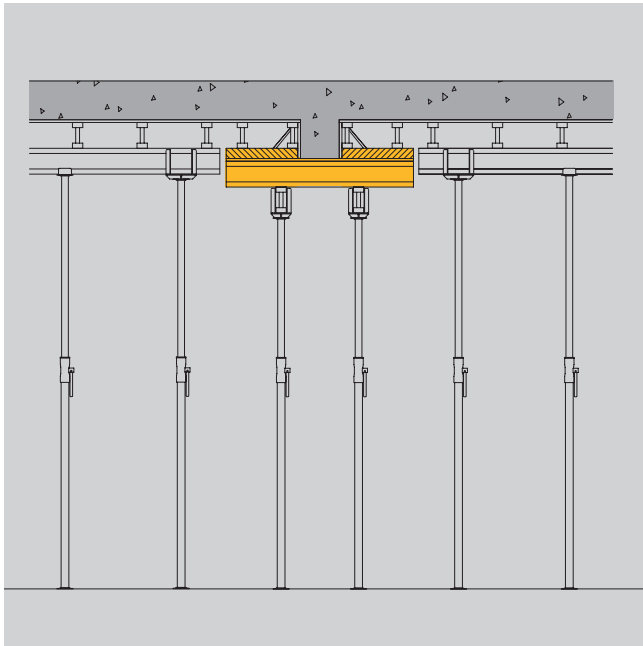
- ▶ ENKOFLEX infilling on inclined wall: secondary beams shored on the beam against the wall.

The solution depends on the angle formed between the main beam and the wall.



- ▶ ENKOFLEX infilling on inclined wall: board shored on the beam against the wall.

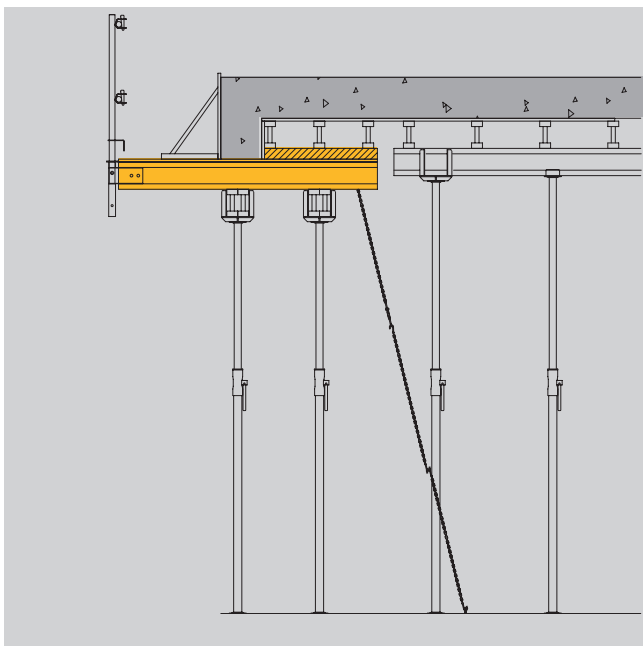
## Hanging beams



To provide a solution for hanging beams, the main beam is placed in the main direction of the hanging beams, and the secondary beams rest on these.

### ► Hanging beam solutions with ENKOFLEX.

Special attention must be paid when the hanging beam is on the perimeter of the formwork, due to the risk of overturning the assembly. It is recommended to use a VR Chain.



**It is recommended to use Tripods on the first Props.**



**If the infilling is placed from above, the operator should be tied off to a life line at all times.**



**It is necessary to anchor the formwork that is installed around the border of the slab in order to assure it cannot turn over or loose stability due to the forces of the wind.**

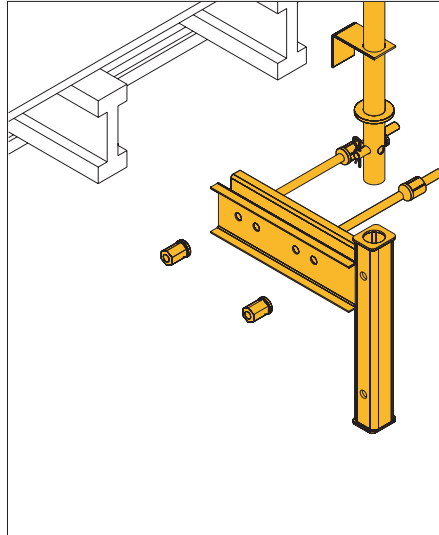
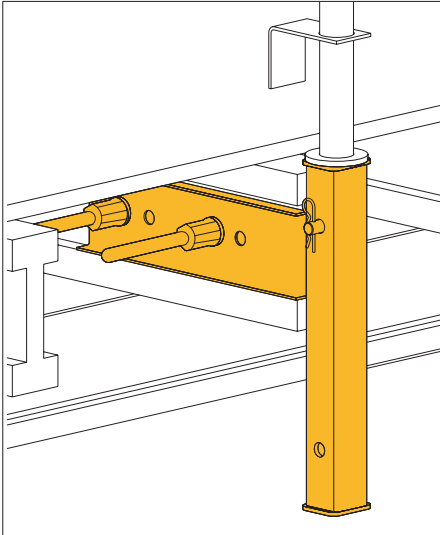
### ► Hanging beam on the perimeter of the slab with ENKOFLEX system.



## ► Safety Elements

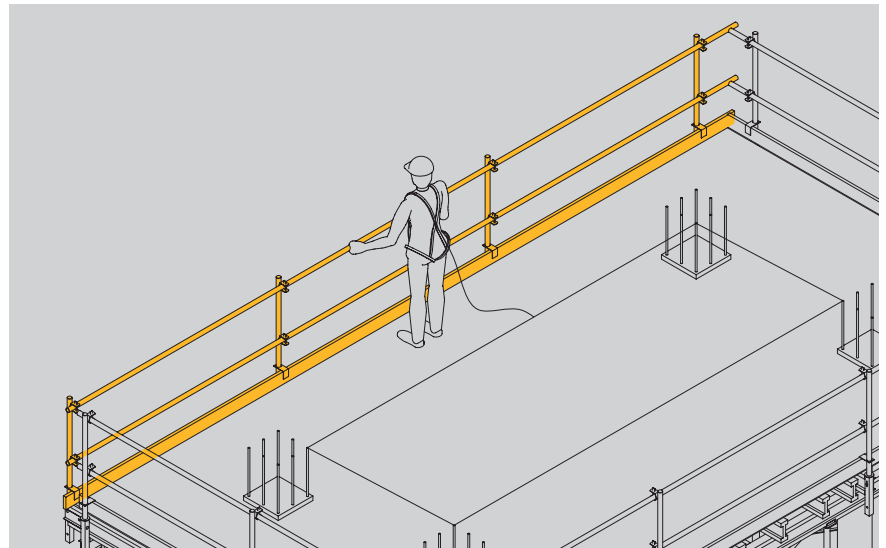
### Handrail support

The **Handrail Support** is tied to VM 20 Beams using two Short Pins 0.35 and Hexagonal Nuts 15. It can be assembled on the main beams and on the secondary beams.



The Safety Handrail Post acts as a support for mounting the front and lateral handrails. It is fixed using a Pin Ø14 and the corresponding Cotter Pin 3. In the lower section it has a sliding L in which the toe board can be placed. The Ledgers are fixed to the Safety Handrail Post using clamps with wedges, and they protect the formwork perimeter.

► Assembling the Handrail Support.

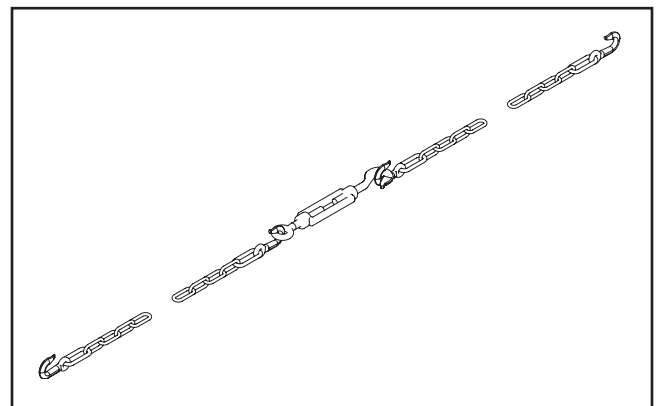


► Assembling the Handrail.

### Chain VR

This part is used to tie the perimeter VM 20 Beams of the ENKOFLEX system (particularly those of the overhang) to the slab and thus prevent them from swinging outwards or lifting up in the event of a strong wind. It is made up of two metal chains (DIN 763) with two hooks on the ends of each chain. These chains are joined by turnbuckle M-12 eye and hook (DIN 1480).

The chain is tied to the slab by a ring or screw that will have been previously placed in the slab. The chain is 5.2 m long and has a working load of 2.5 kN.



## ► Applications

### Infilling on column



► Fest City, Dubai

## Infilling on wall



► Shopping Mall (Frankfurt)



### ► Receiving, storing and cleaning

#### RECEIVING MATERIAL ON SITE

- Fence off, close off and mark off the work area, when necessary.
- Receive transport vehicles on site after obtaining the necessary permits when applicable.
- A priori, the storage zone will be established and duly marked.

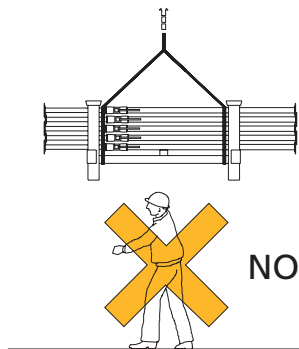
#### UNLOADING MATERIAL

##### Mechanical unload

- All the material will arrive grouped and strapped.
- The person in charge of receiving the material will revise the condition of the pallets or packages.
- The forklift route will be marked in order to avoid interferences with personnel.
- The forklift operator will store the materials following the operator instructions provided by the person in charge of storage.
- In no case shall the operator in charge of storage or receiving, loiter in the forklift travel route.

##### Unload with crane

- The operator in charge of unloading shall not loiter underneath the load.



- The operator will wait until the load is practically on the ground before guiding it to the proper place.

##### Manual unload

- Loads of greater than 25 kg will not be handled by a single person.





## STORAGE

EP Props are supplied on the corresponding pallet.

After they have been used at the construction site, the Props should be piled on said pallet, stacking them in both directions in order to balance the load. After they are stacked, they should be strapped down.

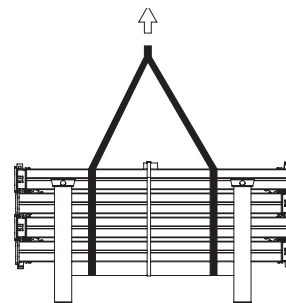
The Boards and Beams should be strapped. Other elements are supplied in bulk in boxes or pallets. System components should always be stored after they have been cleaned and after each time they have been put up. Boards should always be stacked off the ground, on leveled supports and under a covered roof.



Exposing to prolonged periods of sunlight or rain can damage the boards.

## LIFTING AND MOVING MATERIALS

The biggest components will be lifted or lowered with a hoist to the different floors (or levels) in packages that are strapped on both ends; the materials will be suspended from a set of slings strapped to the tower crane hook. All other elements will be moved in boxes.



## CLEANING

The formwork surfaces should be checked and cleaned before placing the materials that comprise the structure. Boards should be cleaned after each use with a brush and a release agent.



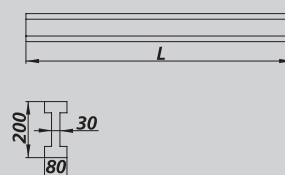
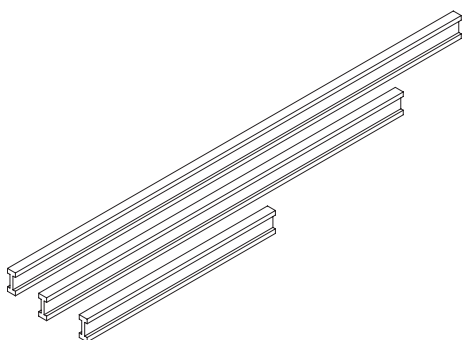
Do not use wire brushes that can damage the board surface.

## Components and accessories

### Basic Elements

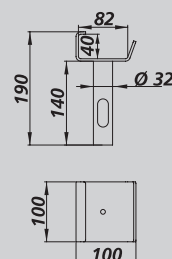
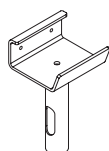
#### VM 20 Beam

	WEIGHT (kg)	CODE	L (mm)
Beam VM 20/1.9	9.5	1940172	1900
Beam VM 20/2.45	12.25	1950129	2450
Beam VM 20/3.9	19.5	1950112	3900
Beam VM 20/4.9	24.5	1950113	4900
Beam VM 20/2.9	14.5	1940144	2900
Beam VM 20/3.3	16.5	1950130	3300
Beam VM 20/3.6	18	1940146	3600
Beam VM 20/5.9	29.5	1940149	5900



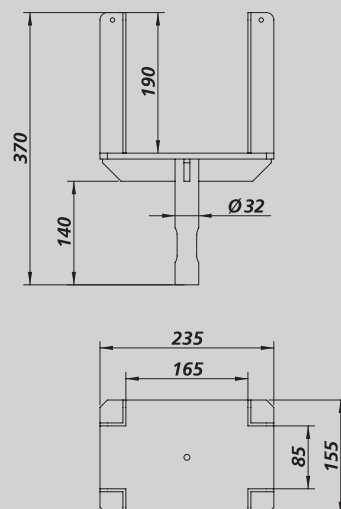
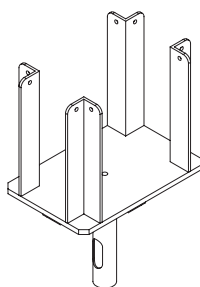
#### VR Simple Head

WEIGHT (kg)	CODE
0.72	2211000



#### VR Double Head

WEIGHT (kg)	CODE
4.78	2211003

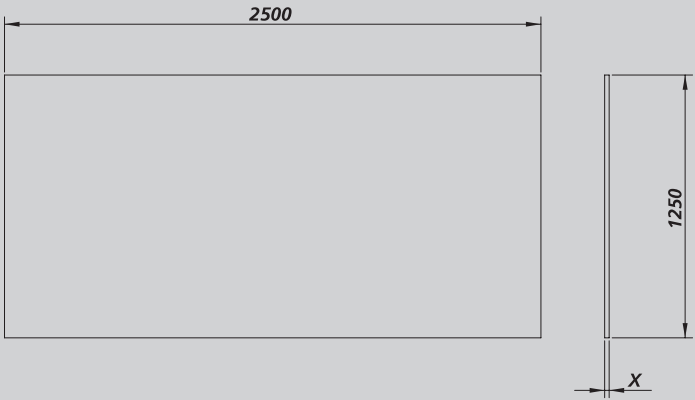


## Boards

### Beto

Board 1.25x2.5x0.021 Beto  
Board 1.25x2.5x0.018 Beto

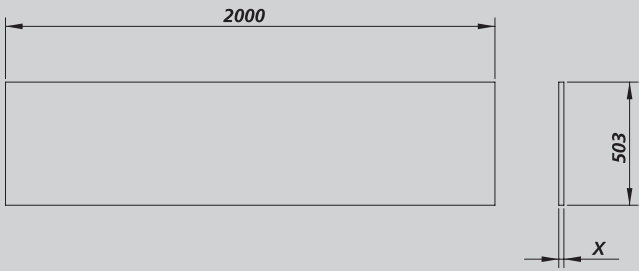
WEIGHT (kg)	CODE	X (mm)	
40.7	1940166	21	
34.9	1940198	18	



### 3-Ply Sheet

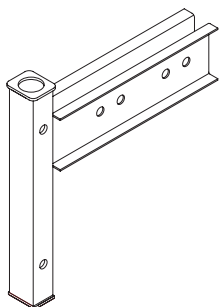
3-Ply Sheet 2000x503x21  
3-Ply Sheet 2000x503x27

WEIGHT (kg)	CODE	X (mm)	
11.4	7251131	21	
15	7251132	27	



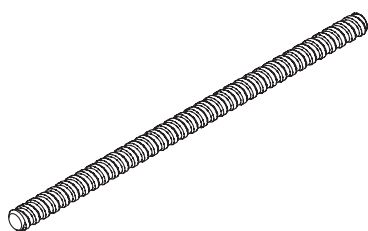
## Safety Elements

### VM Handrail Support



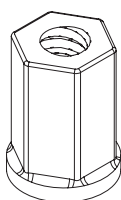
WEIGHT (kg)	CODE	
6.9	2211165	

### Short Pin 0.35



WEIGHT (kg)	CODE	
0.6	1861033	

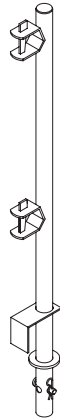
### Hexagonal Nut 15



WEIGHT (kg)	CODE	
0.22	7238001	



## Safety Handrail S-V



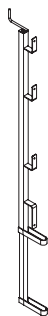
WEIGHT (kg)	CODE	
3.9	1860516	

## Safety Handrail 1.50



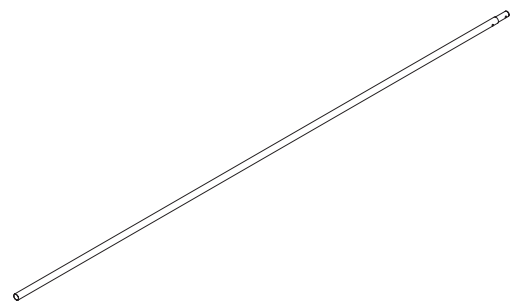
WEIGHT (kg)	CODE	
9.6	2211156	

## Clamp Safety Handrail



WEIGHT (kg)	CODE	
5.6	1860723	

Tube 42/4070 with Socket

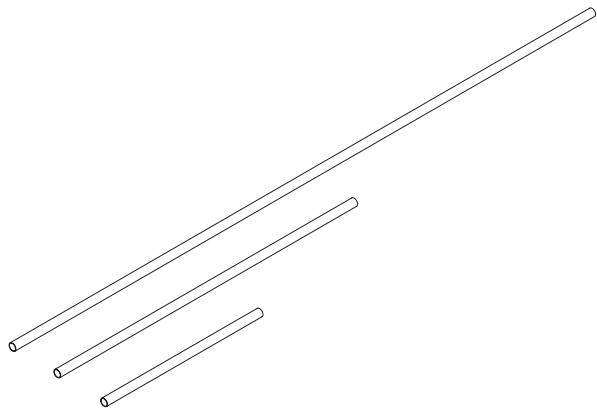


WEIGHT (kg)	CODE	
8.4	2023800	

Tube 42

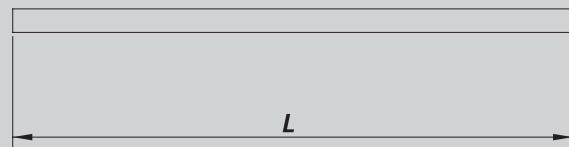
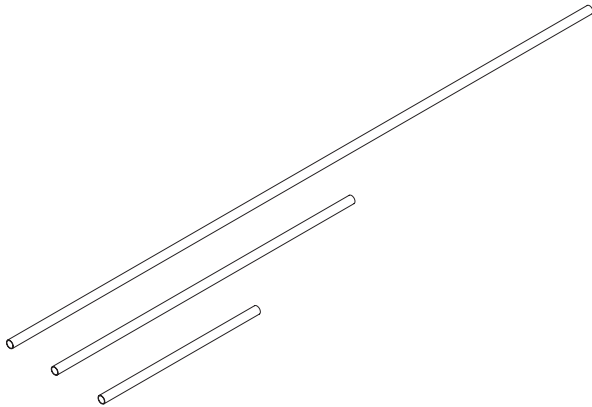
- Tube 42/1.55
- Tube 42/2.1
- Tube 42/3.1
- Tube 42/4.1
- Tube 42/5

WEIGHT (kg)	CODE	L (mm)	
3	2033700	1550	
4.1	2033800	2100	
6.4	2034000	3100	
8.4	2033600	4100	
12.2	2053000	5000	



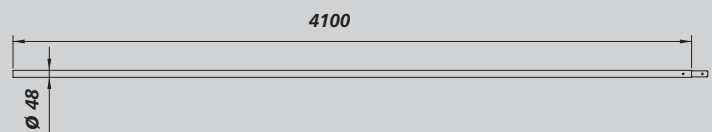
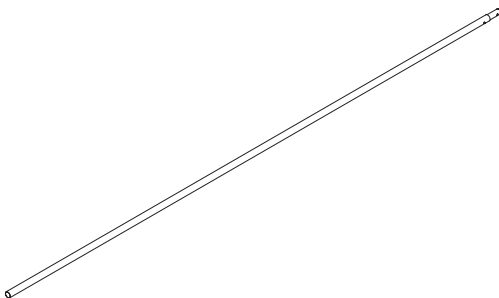
## Tube Ø48

	WEIGHT (kg)	CODE
Tube 48/1.6	5.5	2125290
Tube 48/2.1	7	2125291
Tube 48/2.6	8.7	2125647
Tube 48/3.1	11.4	2125249
Tube 48/3.6	12.1	2125648
Tube 48/4.1	14.6	2125250
Tube 48/5	18	2125251



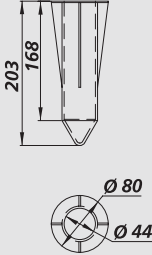

## Tube 48/4100 with Socket

	WEIGHT (kg)	CODE
	13.14	2125649



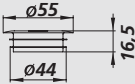

Plastic Handrail Support

WEIGHT (kg)	CODE	
0.1	1860533	



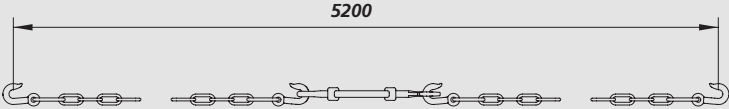
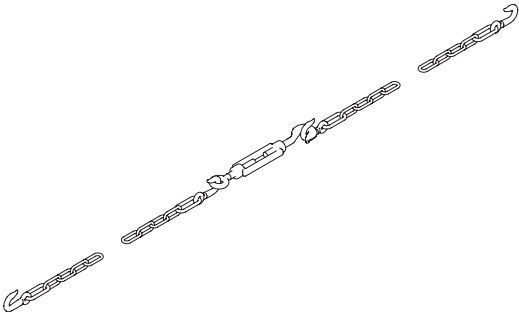
Plug 42

WEIGHT (kg)	CODE	
0.007	1904100	



VR Chain

WEIGHT (kg)	CODE	
2.9	2211035	





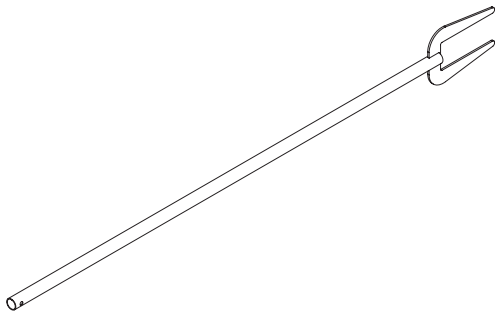
## VR Chain anchoring elements

Eyebolt Screw M16	0.3	9165400
Ring 12x120	0.18	9371772
Ring 12x160	0.22	9371778
Ring 12x230	0.29	9371779
HKD Hilti Plug M16	0.9	9850530
Plastic Plug 14x70	0.01	9371777
Plastic Plug 14x100	0.01	9371774
Plastic Plug 14x140	0.01	9371773

## Other Components

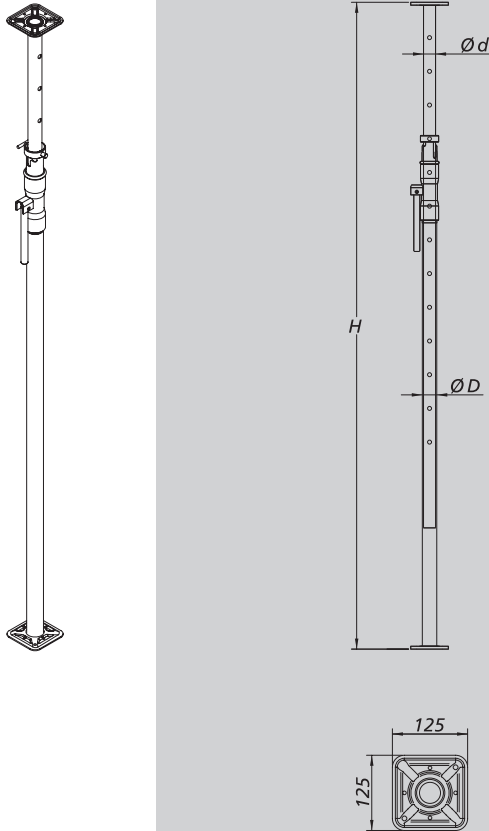
### VR Fork

WEIGHT (kg)	CODE
2.86	2211051



Shoring Elements

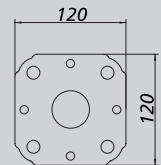
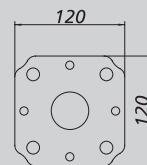
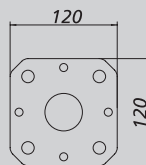
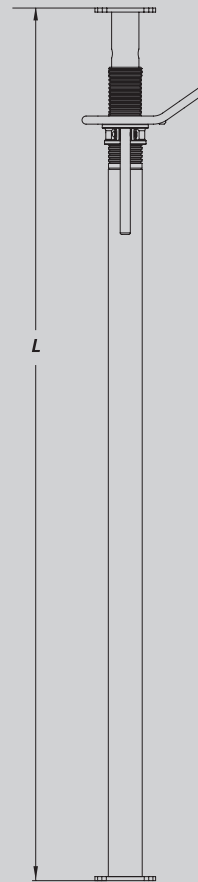
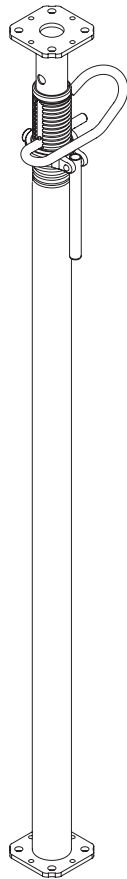
SP Prop		CODE	H (m)	WEIGHT (kg)	Ø d (mm)	Ø D (mm)
Normal Prop 1.75/3.1		2150000	1.75-3.1	10	40	48
Normal Prop 2.1/3.5		2150500	2.1-3.5	10.6	40	48
Strong Prop 2.1/3.65		2154300	2.1-3.65	13.6	52	60
Strong Prop 2.35/4		2159333	2.35-4	15.1	52	60
Strong Prop 3.65/5.25		2154400	3.65-5.25	18.8	52	60
SP-40 Prop		2170400	2.5-4.00	16.3	54	66
SP-50 Prop		2170500	3.9-5.00	23.1	64	76



## EP Prop

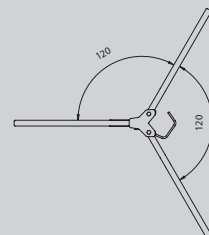
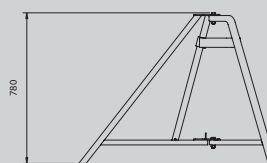
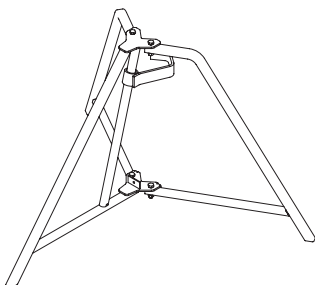
EP Prop C25  
EP Prop C+D30  
EP Prop C+D35  
EP Prop C+D40  
EP Prop C+D45  
EP Prop C+D50  
EP Prop C+E30  
EP Prop C+E40

WEIGHT (kg)	CODE	L max.	L min.	
14.6	2200048	2500	1477	
16.5	2200000	3000	1722	
21.2	2200068	3500	1974	
23.7	2200012	4000	2222	
29.1	2200084	4500	2477	
31.7	2200057	5000	2730	
18.9	2200023	3000	1722	
26.4	2200033	4000	2222	



## Universal Tripod

WEIGHT (kg)	CODE	
11.2	2220090	



## Production Plant

### ULMA C y E, S. Coop.

Ps. Otadui, 3 - P.O. Box 13  
20560 OÑATI (Guipúzcoa)  
SPAIN  
Phone: +34 943 034900  
Fax: +34 943 034920  
Web: www.ulma-c.com

## ULMA Worldwide

### EUROPE

#### ■ Germany

##### **ULMA Betonschalungen und Gerüste GmbH**

Kronberger Str. 16  
D-63110 RODGAU-DUDENHOFEN  
Phone: +49 6106 28677 0  
Fax: +49 6106 28677 86

#### **Noroeste Branch**

Stresemannallee 4c  
D-41460 NEUSS  
Phone: +49 2131 40201 0  
Fax: +49 2131 40201 99

#### **Sudoeste Branch**

Manfred - Wörner - Str. 115  
D-73037 GÖPPINGEN  
Phone: +49 7161 50608 42  
Fax: +49 7161 50608 43

#### ■ France

##### **ULMA, S.A.R.L.**

27, rue Gustave Eiffel  
Z.I. de la Marinière  
91070 BONDOUFLE  
Phone: +33 1 69 11 54 50  
Fax: +33 1 69 11 54 54

#### **IDF Échafaudages Branch**

22 Bis, rue Gustave Eiffel  
Z.I. de la Marinière  
91070 BONDOUFLE  
Phone: +33 1 69 11 63 30  
Fax: +33 1 69 11 63 31

#### **IDF Construction Branch**

27, rue Gustave Eiffel  
Z.I. de la Marinière  
91070 BONDOUFLE  
Phone: +33 1 69 11 63 40  
Fax: +33 1 69 11 63 37

#### **Eguilles Branch**

50, allée Meulière  
Z.I. - Route de Berre  
13510 EGUILLES  
Phone: +33 4 42 64 62 30  
Fax: +33 4 42 64 62 31

#### **Saint Herblain Branch**

11, rue Fondateur  
Z.I. du Tisserand  
44800 SAINT HERBLAIN  
Phone: +33 2 51 80 48 04  
Fax: +33 2 51 80 48 05

#### **La Chapelle d'Armentières Branch**

Zone Industrielle  
Rue André Ampère  
59930 LA CHAPELLE  
D'ARMENTIÈRES  
Phone: +33 3 20 07 11 86  
Fax: +33 3 20 07 11 68

#### **Tarnos Branch**

40, rue de l'Industrie  
Z.I. de Tarnos  
40220 TARNOS  
Phone: +33 5 59 64 44 45  
Fax: +33 5 59 64 44 84

#### ■ Italy

##### **ALPI, S.P.A.**

Zona Industriale Est  
I-39035 MONGUELFO (BZ)  
Phone: +39 0474 947 400  
Fax: +39 0474 947 499

#### ■ Kazakhstan

##### **ULMA Kazakhstan**

01000 ASTANA  
6/2, Tashenova St. 4th floor, offices 7,9  
Phone/Fax: +7 7172 58 05 19  
Phone: +7 7172 37 93 48

#### ■ Poland

##### **ULMA Construccjon Polska S.A.**

03-115 WARSAW  
ul. Klasyków 10  
Phone: +48 22 506 70 00  
Fax: +48 22 814 31 31

#### **Białystok Branch**

15-100 BIAŁYSTOK  
ul. 1. Armii Wojska Polskiego 9, lok. 203  
Phone: +48 85 676 73 00  
Fax: +48 85 675 06 53

#### **Olsztyn Office**

10-467 OLSZTYN  
ul. Sprzętowa 3, lok. 18  
Phone: +48 89 537 73 10  
Fax: +48 89 532 04 95

#### **Gdańsk Branch**

80-298 GDAŃSK  
ul. Budowlanych 27  
Phone: +48 58 522 78 00  
Fax: +48 58 667 02 04

#### **Szczecin Branch**

70-676 SZCZECIN  
ul. Gerarda Merkatora 7  
Phone: +48 91 485 77 30  
Fax: +48 91 462 34 63



**Katowice Branch**

40-203 KATOWICE  
al. Roździeńskiego 188b  
Phone: + 48 32 356 74 80  
Fax.: + 48 32 353 33 90

**Kraków Branch**

31-670 KRAKÓW  
ul. Powstańców 66  
Phone: + 48 12 620 73 70  
Fax: + 48 12 647 34 22

**Lublin Branch**

20-327 LUBLIN  
ul. Wrońska 2  
Phone: + 48 81 749 72 90  
Fax.: + 48 81 744 04 90

**Łódź Branch**

94-250 ŁÓDŹ  
ul. Żniwna 4/8  
Phone: + 48 42 666 73 20  
Fax.: + 48 42 650 03 25

**Poznań Branch**

61-317 POZNAŃ  
ul. Ostrowska 484  
Phone: + 48 61 838 75 30  
Fax: + 48 61 863 01 60

**Bydgoszcz Branch**

85-831 BYDGOSZCZ  
ul. Toruńska 278  
Phone: + 48 52 323 76 80  
Fax: + 48 52 345 25 65

**Warszawa Branch**

03-197 WARSZAWA  
ul. Laurowa 39  
Phone: + 48 22 506 72 50  
Fax: + 48 22 747 19 10

**Wrocław Branch**

50-541 WROCŁAW  
ul. Armii Krajowej 53  
Phone: + 48 71 391 76 30  
Fax: + 48 71 367 30 90

**Nowa Sól Branch**

67-100 NOWA SÓL  
ul. Kościuszki 29  
Phone: + 48 68 376 77 60  
Fax: + 48 68 387 02 21 wew. 357

**■ Portugal**

**ULMA Portugal Lda**  
Zona Industrial - Rua A, s/n  
Vale de Figueira  
2695 SÃO JOÃO DA TALHA - LISBON  
Phone: + 351 219 947 850  
Fax: + 351 219 558 022

**Oporto Branch**

Zona Industrial da Feiteira  
Rua das Casas Queimadas  
717 Grijó  
4415-439 VILA NOVA DE GAIA  
OPORTO  
Phone: +351 227 418 820  
Fax+351 227 418 829

**■ Romania**

**ULMA Cofraje s.r.l.**  
Sos Chitilei, 200  
012405 - Sector 1 - BUCHAREST  
Phone: +40 31 425 13 22 / 23  
Fax: +40 31 425 13 24

**■ Russia**

**ULMA Russia**  
107005 MOSCOW  
9/23, 2nd Baumanskaya St.  
Phone/Fax: + 7 495 777 94 73  
Phone: + 7 495 777 94 72

**■ Ukraine**

**ULMA Formwork Ukraine Ltd.**  
01013 KIEV  
3, Derevoobrobna St.  
Phone: + 380 44 255 14 92  
Fax: + 380 44 255 14 94



## Production Plant

### ULMA C y E, S. Coop.

Ps. Otadui, 3 - P.O. Box 13  
20560 OÑATI (Guipúzcoa)  
SPAIN  
Phone: +34 943 034900  
Fax: +34 943 034920  
Web: www.ulma-c.com

## ULMA Worldwide

### AMERICA

- **Argentina**  
**ULMA Andamios y Encofrados Argentina, S.A.**  
Bernardo de Irigoyen 722 6A  
CP1072AAP CAPITAL FEDERAL  
Phone/Fax: + 541 14 3425132
- **Brazil**  
**ULMA Brasil - Fôrmas e Escoramentos Ltda.**  
Rua Dr. João Dias Ribeiro, 210  
Jd. Sagrado Coração de Jesus  
Itapevi - SP  
CEP: 06693-810  
Phone/Fax: + 55 11 3883 1300  
Phone/Fax: + 55 11 4619 1300
- Río de Janeiro Branch**  
Rua Sargento Silva Nunes, 137  
Ramos - RJ  
CEP: 21040-231  
Phone/Fax: +55 21 2560 2757  
Phone/Fax: +55 21 2560 5541
- Centro-Oeste Branch**  
Quadra 3, Lotes 680/700  
Setor Industrial Leste  
Gama - Brasília DF  
CEP: 72445-030  
Phone/Fax: +55 61 3556 6226
- Sur Branch**  
Rua Dr. João Inácio, 195/199  
Navegantes - Poa RS  
CEP: 90230-180  
Phone/Fax: +55 51 3337 1003

- **Chile**  
**ULMA Chile - Andamios y Moldajes, S.A.**  
Vizcaya nº 325 - Pudahuel  
(Ruta 68, Camino Noviciado)  
SANTIAGO  
Phone: + 56 2 5990530  
Fax: + 56 2 5990535

**Norte Branch**  
General Borgoña 934 of. 70  
ANTOFAGASTA  
Phone: +56 5 5246770  
Fax: +56 5 5246960

**Sur Branch**  
O'Higgins 940 of. 904  
CONCEPCIÓN  
Phone: +56 4 12522930  
Fax: +56 4 12228321

- **USA**  
**ULMA Form Works, Inc.**  
58 Fifth Avenue  
Hawthorne, NEW JERSEY  
07506  
Phone: + 1 973 636 2040  
Fax: + 1 973 636 2045

**Arizona Branch**  
1530 West Houston Avenue  
Gilbert, ARIZONA 85233  
Phone: + 1 480 304 4942  
Fax: + 1 480 304 4948

### California Branch

130 McCormick Avenue  
Costa Mesa, CALIFORNIA 92626  
Phone: + 1 714 655 2899  
Fax: + 1 714 380 3835

### Maryland Branch

8235 Patuxent Range Road  
Jessup, MARYLAND 20794  
Phone: + 1 443 296 9852  
Fax: + 1 443 296 9860

- **Mexico**  
**ULMA Cimbras y Andamios de México S.A. de C.V.**  
Vía Gustavo Baz Prada 2160  
Acceso 5  
54060 Col. La Loma  
TLALNEPANTLA  
(Estado de México)  
Phone: + 52 55 5361 6783  
Fax: + 52 55 2628 3549

- **Peru**  
**ULMA Encofrados Perú, S.A.**  
Av. Argentina 2882  
LIMA  
Phone: +51 1 613 6700  
Fax: +51 1 613 6710

### Norte Branch

Ctra. Pomalca, km 2,7  
Chiclayo- LAMBAYEQUE  
Phone: +51 7 460 8181  
Fax: +51 7 460 8182

### ASIA-AFRICA

- **P. R. China**  
**ULMA Formworks China R.O.**  
#1009 Fortunegate Mall  
1701 West Beijing Road  
SHANGHAI, 200040  
Phone: +86 21 62887070  
Fax: +86 21 62885980
- **UAE**  
**ULMA Formworks UAE L.L.C.**  
Plot No. 597- 547  
Dubai investments Park  
P.O. Box. 282286  
DUBAI  
Phone: + 971 4 3419970  
Fax: + 971 4 3418850
- **Singapore**  
**ULMA FORMWORK SINGAPORE PTE. LTD.**  
2 Senoko Way  
758027 SINGAPORE  
Phone: + 65 6758 2338  
Fax: + 65 6758 8523





## ULMA in Spain

### ARAGÓN Branch

Pol. Ind. El Pradillo II  
Aneto, 2 - Parcela 23  
50690 PEDROLA (Zaragoza)  
Phone: 976 654645  
Fax: 976 654635

### ASTURIAS Branch

Pol. Ind. de Rocas, 5  
Gustavo Eiffel, 46  
33211 GIJÓN (Asturias)  
Phone: 98 5168038  
Fax: 98 5167513

### BALEARES Branch

Pol. Ind. Son Noguera  
Cas Rossos, 12-14  
07620 LLUCMAJOR  
(Illes Balears)  
Phone: 971 669850  
Fax: 971 121512

### BARCELONA Branch

Pol. Ind. Sud - Est  
Pintor Velázquez, 7 y 9  
08213 POLINYA (Barcelona)  
Phone: 93 7132727  
Fax: 93 7133643

### CASTILLA - LEÓN Branch

Ctra. Burgos - Portugal, km 116  
47270 CIGALES (Valladolid)  
Phone: 983 581009  
Fax: 983 581021

### DERIO Branch

Iturritxualde, 3  
48160 DERIO (Vizcaya)  
Phone: 94 4521425  
Fax: 94 4522468

### GALICIA Branch

Pol. Ind. Espíritu Santo  
Rua Bell, 24-26  
15650 CAMBRE (La Coruña)  
Phone: 981 649802  
Fax: 981 649060

### GRANADA Branch

Camino Nuevo, s/n  
18210 PELIGROS (Granada)  
Phone: 958 405028  
Fax: 958 405328

### LAS PALMAS Branch

Pol. Ind. Las Majoreras  
Los Llanillos, 33  
35259 INGENIO (Las Palmas)  
Phone: 928 789212  
Fax: 928 789538

### MADRID Branch

Pol. Ind. Sur  
28863 COBENÑA (Madrid)  
Phone: 91 6523199  
Fax: 91 6528828

### MÁLAGA Branch

Pol. Ind. Villarroza  
Carril de las Serrerías, 32  
29004 MÁLAGA  
Phone: 952 176389  
Fax: 952 231047

### MURCIA Branch

Pol. Ind. La Serreta  
Calí, s/n  
30500 MOLINA DE SEGURA  
(Murcia)  
Phone: 968 642679  
Fax: 968 641276

### NORTE Branch

Pol. Ind. Goiaín  
Av. San Blas, 1  
01170 LEGUTIANO (Álava)  
Phone: 945 001100  
Fax: 945 001111

### SEVILLA Branch

Pol. Ind. Fridex  
Autovía Sevilla - Málaga, km 4,2  
41500 ALCALÁ DE GUADAIRA  
(Sevilla)  
Phone: 95 5630044  
Fax: 95 5630020

### TENERIFE Branch

Pol. Ind. Valle de Güimar  
Manzana XIII - Parcelas 21 y 22  
38509 GÜIMAR (Tenerife)  
Phone: 922 505020  
Fax: 922 501101

### VALENCIA Branch

Pol. Ind. Los Vientos  
Gregal, 7  
(Apdo. 96 Moncada)  
46119 NÁQUERA (Valencia)  
Phone: 96 1399130  
Fax: 96 1399096

## ► Our Products

### Vertical Formworks



**ORMA Modular Formwork**  
A system for large works and high performance



**Circular Sheet Formwork BIRA**  
Formwork system designed for circular wall configurations



**ENKOFORM V-100 Bracing System**  
Wall and Column Formwork with Steel Walers and Timber Beams



**LGR Column Formwork**  
Column formwork using light panels



**COMAIN Hand-held Formwork**  
Modular Formwork that is light and easy to handle by a single person



**CLR Circular Column Formwork**  
Circular column formwork, designed to solve the different column diameters easily



**NEVI Modular Formwork**  
Vertical handset and gang formwork system



**Formwork Climbing Systems**  
Climbing and self-climbing systems for any height

## Horizontal Formworks



**RAPID Reusable Formwork**  
Formwork that can be easily and quickly recovered from assembly



**VR Work Table**  
Horizontal formwork for any forging type



**RECUB Reusable Coffered Formwork**  
Speed and safety in assembly and removal



**ENKOFLEX Formwork**  
Horizontal formwork for wooden beams, easy to assemble and very versatile



**ENKOFORM H-120 Bracing System**  
A multipurpose system, capable of resolving the diverse types of construction work



**Wood Panels for Formwork**  
Panels that adhere to the highest of site demands



**CC-4 Horizontal Formwork**  
Aluminium horizontal formwork, light, fast setting and stripping



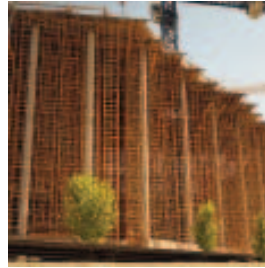
## ► Our Products

### Props and Shoring



#### **SP Prop**

Special design for regulating and securing at heights, light and easy to handle



#### **G Shoring**

Easy, effective system for shoring horizontal formworking



#### **EP Prop**

The post shore that offers the best features for easy operation and fast stripping



#### **T-60 Shoring**

Frame shoring, fast assembly and easy to use



#### **ALUPROP Aluminium Prop**

Light and with high load capacity



#### **OC Shoring**

Post shoring, sturdy, safe and with great flexibility of deployment

### Scaffoldings



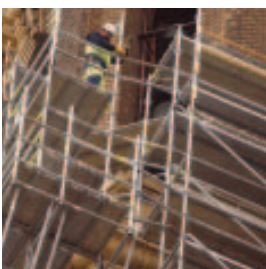
#### **DORPA Façade Scaffolding**

High-performance modular system for covering façades



#### **BRIO-ST Façade Stabiliser**

Combination of sturdiness, simplicity and safety



#### **The Modular BRIO**

Versatile system capable of covering all possible configurations and applications







**ULMA C y E, S. Coop.**

Ps. Otadui, 3 - P.O. Box 13  
20560 OÑATI (Guipúzcoa)  
SPAIN  
Phone: + 34 943 034900  
Fax: + 34 943 034920  
Web: [www.ulma-c.com](http://www.ulma-c.com)